

What is claimed is:

1. A method of cost variance analysis, comprising:
  - (a) assessing variables  $p$  (price),  $R$  (efficiency),  $U$  (utilization) and  $m$  (product mix), at least one of the variables being a variable of interest comprising a plurality of influencing factors;
  - (b) expressing the variable of interest as a matrix having a plurality of columns, each column representing an influencing factor; and
  - (c) conducting  $p'RUm$  analysis according to Broyles and Lay, substituting the matrix for the variable of interest.
2. A method according to claim 1, including the step of assessing the impact of an influencing factor on cost variance attributable to the variable of interest.
3. A method according to claims 1 or 2, wherein the variable of interest is  $m$  (product mix), the matrix is a diagonal matrix and each column of the matrix represents a product of the product mix.
4. A method according to claims 1 or 2, wherein the variable of interest is  $m$  (product mix) and including the step of expressing all products of the product mix that belong in a product-group in a single column of the matrix.
5. A method according to claims 3 or 4, wherein the step of conducting  $p'RUm$  analysis according to Broyles and Lay includes the step of conducting cost variance analysis by product or product mix for one or more of the variables.
6. A method according to claims 3 or 4, wherein the step of conducting  $p'RUm$  analysis according to Broyles and Lay includes the step of conducting product-specific or product-mix-specific interactions from the group comprising two-way, three-way and four-way interactions.

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7. A method according to claim 1, including the step of combining the variables  $U$  (utilization) and  $m$  (product mix), to obtain the variable of interest  $Um$  which represents volume of services.
8. A method according to claim 1, wherein the matrix is a diagonal matrix and each column of the matrix represents a particular activity and gives the volume of activities for the production of all products.
9. A method according to claim 7, including the step of pre-multiplying the matrix by  $R$  to give resources by activities matrices.
10. A method according to claim 9, including the step of pre-multiplying the matrix by  $p'$  to give dollars by activities vectors.
11. A method according to claim 7 including the step of expressing all services that belong in an organizational unit in a single column of the matrix.
12. A method according to claims 8 or 11, wherein said step of conducting  $p'RUm$  analysis according to Broyles and Lay includes the step of conducting cost variance analysis by activity for one or more of the variables.
13. A method according to claims 8 or 11, wherein said step of conducting  $p'RUm$  analysis according to Broyles and Lay includes the step of conducting activity - specific interactions from the group comprising two-way, three-way and four-way interactions.
14. A method according to claim 1, including the step of combining the variables  $R$ ,  $U$  and  $m$  to obtain the variable of interest  $RUm$  which represents volume of resources.
15. A method according to claim 14, wherein the matrix is a diagonal matrix and each column of the matrix represents a particular resource and gives the volume of resources for all activities for the production of all products.

16. A method according to claim 15, including the step of pre-multiplying the matrix by  $p$  to give dollars for resources vectors.
17. A method according to claim 14, including the step of expressing all resources acquired in a single column of the matrix.
18. A method according to claims 8 or 11, wherein said step of conducting  $p'RUm$  analysis according to Broyles and Lay includes the step of conducting cost variance analysis by resource for one or more of the variables.
19. A method according to claims 8 or 11, wherein said step of conducting  $p'RUm$  analysis according to Broyles and Lay includes the step of conducting resource - specific interactions from the group comprising two-way, three-way and four-way interactions.
20. A method of cost variance analysis using  $p'RUm$  analysis, having variables  $p$  (price),  $R$  (efficiency),  $U$  (utilization) and  $m$  (product mix), at least one of the variables being a variable of interest comprising a plurality of influencing factors, having an improvement comprising:
  - (a) expressing the variable of interest as a matrix having a plurality of columns, each column representing an influencing factor; and
  - (b) assessing the impact of an influencing factor on cost variance attributable to said variable of interest.
21. A method of revenue and profit variance analysis using an extension of  $p'RUm$  analysis, having variables  $sp$  (selling price) and  $m$  (product mix), at least one of the variables being a variable of interest, comprising:
  - (a) determining profit and revenue variances between actual and budgeted revenues; and

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- (b) assessing impact of an influencing factor on profit and revenue variance attributable to said variable of interest.
22. A cost variance analysis system comprising:
- (a) means for assessing variables  $p$  (price),  $R$  (efficiency),  $U$  (utilization) and  $m$  (product mix), at least one of the variables being a variable of interest comprising a plurality of influencing factors;
  - (b) means for expressing the variable of interest as a matrix having a plurality of columns, each column representing an influencing factor; and
  - (c) means for conducting  $p'RUm$  analysis according to Broyles and Lay, substituting the matrix for the variable of interest.
23. A cost variance analysis system of claim 22 including means for storing the variables.
24. A computer readable medium containing computer-executable instructions which, when performed by a processor in a cost variance analysis system, cause the processor to:
- (a) assess variables  $p$  (price),  $R$  (efficiency),  $U$  (utilization) and  $m$  (product mix), at least one of the variables being a variable of interest comprising a plurality of influencing factors;
  - (b) express the variable of interest as a matrix having a plurality of columns, each column representing an influencing factor; and
  - (c) conduct  $p'RUm$  analysis according to Broyles and Lay, substituting the matrix for the variable of interest.

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25. A method of cost variance analysis using  $p'RUm$  analysis according to Broyles and Lay, the improvement comprising substituting the  $R_b$  matrix with a matrix consisting of a selected column of differences obtained by subtracting corresponding columns in matrices  $R_a$  and  $R_b$ ; and populating the other columns of the substituted matrix by zero values, the selected column corresponding to a selected activity.
26. A method of cost variance analysis according to claim 25, including the step of multiplying the substituted matrix by a budgeted price row vector to yield a row vector representing the difference in unit cost of a product.
27. A method according to claim 26, including the step of diagonalizing the substituted matrix and the row vector.
28. A method according to claim 27, including multiplying the diagonalized row vector by the  $m_b$  matrix to yield the total change of costs for each product attributable to changes in efficiency of the selected activity.
29. A method according to claim 28, including multiplying the total change of costs product by the  $U_b$  matrix to yield the total change in costs of resources attributable to changes in efficiency of the selected activity.
30. A cost variance analysis report including variances selected from the group comprising variances attributable only to changes in efficiency, resource conversion efficiency variance, cost variance components for activities, resource conversion efficiency variance, cost variance components for resources.